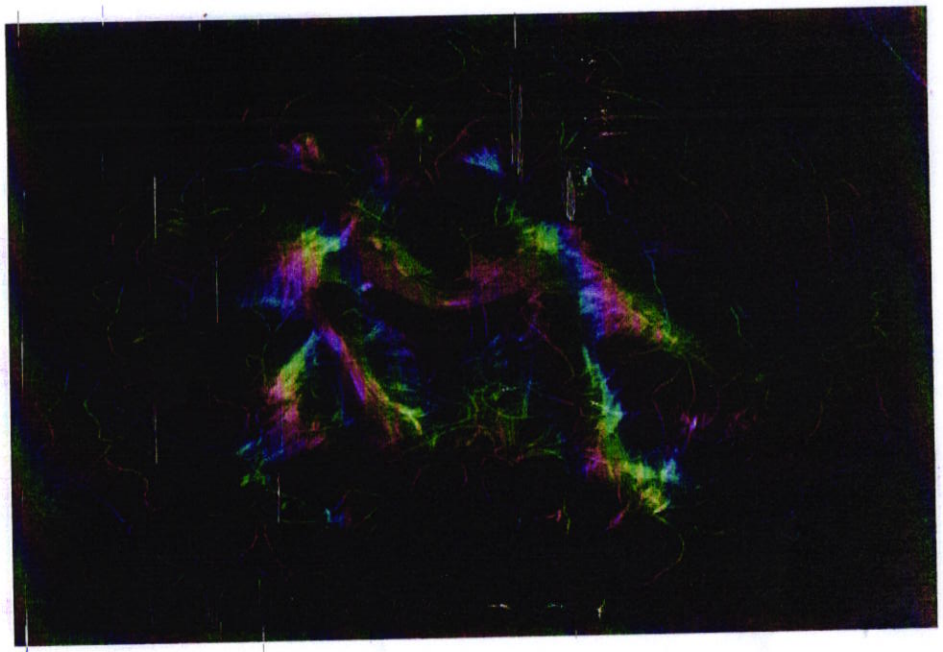


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Abstract 29

Presenter Hikmet Emre Kale

Title Default Mode Network Connectivity Differences In Obsessive-Compulsive Disorder

Authors Orhan Murat Koçak, Emre H. Kale, Metehan Çiçek

Introduction: A set of brain regions is "active" at rest and this activity decreases during goal directed tasks. These areas commonly known as "default mode network" (DMN). The activity decrease in DMN suggested to represent the reallocation of recourses to task demands. Previously, in an fMRI study we performed, during cognitive control of a simple mental image obsessive-compulsive disorder (OCD) patients showed less activity then healthy conditions in right inferior parietal lobe (IPL), superior frontal gyrus (SFG) and posterior cingulate cortex (PCC), which are parts of the suggested DMN. Follow up ROI analysis showed increased resting activity in SFG and PCC in the patient group compared to the healthy controls suggesting a problem in DMN functionality. These findings inspired us to reanalyze the same data in terms of DMN functionality. Methods: The study included 12 right-handed OCD patients (OCD group) and 12 right-handed healthy (Control group) volunteers. We used the free-imagination condition for the resting state functional MRI (rs-fc-MRI) analysis, in which subjects were instructed to rest, eyes closed in the scanner and think freely. Results: In rs-fc-MRI analysis differences were found between two groups. The rs-fc-MRI analysis was performed in PCC, Medial Prefrontal Cortex (MPFC), left IPL and right IPL ROI's. The control group showed increased connectivity than OCD group between ROIs , PCC and left medial/superior temporal gyrus. This may be related to the problems OCDs demonstrate such as repetitive movement. OCD group showed higher connectivity between right IPL and MPFC also between left IPL and left extrastriate cortex. MPFC and extrastriate cortex are involved in the DMN. This higher connectivity could cause the malfunction of one of or both regions. Discussion: In summary, if we assume resting as a physiologic, functionally significant state of the brain these differences might underlay mechanisms of some of the problems manifested in OCD patients.

Abstract 30

Presenter Handan Noyan

Title Evaluation of cognition in the first degree relatives of patients with schizophrenia: Association between negative schizotypal personality traits and cognitive dysfunctions

Authors Handan Noyan, Alp Üçok

Introduction: There are many studies which indicate association between negative schizotypal traits and cognitive dysfunctions , especially executive functions in the first degree relatives of patients with schizophrenia (SCZ-RELs). Aim of this study is to evaluate cognitive functioning and their relationship with schizotypal traits in SCZ-RELs. With this study we determine probable role of cognitive functions in familial risk for psychosis. Methods: This study was carried out with SCZ-RELs (n=30) and control group (n=32) who are 16-35 years old and distributed equally in terms of gender. Participants were evaluated with an extensive neuropsychological test battery [Wisconsin Card Sorting Test (WCST), Digit Span, Tower of London Test (TOL), Semantic and Lexical subtests of Verbal Fluency Test (VFT), Iowa Gambling Test (IGT), 'similarities' subtest of WAIS-R, Stroop] and Schizotypal Personality Questionnaire-Brief (SPQ-B). Results: Significant differences were found between two groups in scores of WCST perseverative

error ($p<0.01$), % perseverative error ($p<0.05$) number of trials ($p<0.05$) and TOL number of total correct ($p<0.01$), move ($p<0.001$) with rule ($p<0.05$; $p<0.01$) and time ($p<0.05$; $p<0.001$) violations and VFT lexical subtest ($p<0.05$). In logistic regression analysis, scores of WCST perseveration error ($p<0.05$), TOL number of move ($p<0.05$) and SPQ-B (negative) ($p<0.05$) appeared as independent variables when membership of SCZ-RELs/control group were entered as dependent variable. In Principal component analysis, we entered cognitive variables with scores of SPQ-B; three factors appeared and one of these factors consists of SPQ-B (negative), Stroop-time difference and WCST-categories. Discussion: SCZ-RELs performed worse on executive tasks than the control group. Hence, our study suggests that there is a relationship between negative schizotypal traits and executive functions. This conclusion, which is consistent with previous studies, imply that executive dysfunctions may be a marker of familial risk for psychosis.

Abstract 31

Presenter Igor Mapelli

Title Brain Oscillatory Analysis of Gist-Based Short-Term False Memory for Visual Stimuli: A Preliminary Study

Authors Igor Mapelli, Sibel Özer, Tolga Esat Özkurt

Introduction: Human memory is fallible and open to a variety of errors. Understanding how true and false memories differ might provide clues to understand the memory processes. Recently updated models of memory indicate the long term and working memory association. Human memory appears to be very accurate in the recognition of pictures. Yet, appropriate paradigms – as the one described here – can induce false working memories. Methods: The experiment is implemented as follows:Fixation cross is shown prior each trial (1.25 ± 0.25 s). 1) Four stimulus images are presented sequentially (250 ms). 2) Fixation cross for the retention phase (1.25 ± 0.25 s). 3) Two images are presented. Subjects select which images – none, one, or both – were previously shown. Six subjects participated to the behavioral study, while EEG data were collected from one subject. Results: False memory recorded a response time of M=1.11 s (SE=.10 s). Correct answers recorded a response time of M=1.19 s (SE=.03 s). Single and double errors recorded a response time of respectively M=1.33 s (SE =.09 s) and M=1.36 s (SE=.12 s). Response time was significantly influenced by the classes of answer, $F(3, 15) = 4.304$, $p < .05$, $r = 0.598$. Post hoc tests revealed significant difference, $p < .05$, for *false memory vs. single error*, and *correct* vs. *single error*. Marginally significant were the response time of *false memory* vs. *double error* ($p = .0525$), and *correct* vs. *double error* ($p = .076$). EEG time frequency analysis portraits exhibited significant alpha activity variations through the different phases of the experiment (encoding, retention, and recognition) for each class of answer. Discussion: Behavioral results suggest that false memory events differ from other type of errors and appear to have similarity to correct answers. Preliminary EEG data analysis provided oscillatory markers for the distinction of false memory trials.